

Listing of Claims:

Claims

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Currently Amended) A filter having a variable passband comprising:
a filter circuit having as inputs a signal to be filtered (a forward signal) and
a reverse version of the signal to be filtered (a reverse signal), and having as an output a
filtered signal as a function of a variable coefficient; and
a variable equivalent sample rate coefficient converter having an initial
coefficient as an input together with a variable resampling rate parameter that
determines the variable passband, and providing as an output the variable coefficient as
a function of the variable resampling rate parameter;
wherein the filter circuit comprises:
a first IIR filter having the forward signal and the variable coefficient as
inputs, and providing as an output a first filtered signal;
a second IIR filter having the reverse signal and the variable coefficient as
inputs, and providing as an output a second filtered signal; and
means for combining the first and second filtered signals with the forward
signal to provide the filtered signal;
wherein the combining means comprises a summing circuit having as
inputs the first and second filtered signals and the forward signal, and providing as an
output the filtered signal; and ~~The filter as recited in claim 3~~
wherein each IIR filter comprises:
a gain stage having an input coupled to receive an input signal, and
providing an output in response to a gain component of the variable coefficient; and
a decay stage having an input coupled to the output of the gain stage, and
providing as an output a filtered input signal in response to a decay component of the
variable coefficient.

5. (Original) The filter as recited in claim 4 wherein the variable equivalent sample rate coefficient converter comprises:

an asymmetric variable equivalent sample rate coefficient converter having as inputs the variable resampling parameter and a gain component of the initial coefficient, and providing as an output the gain component of the variable coefficient; and

a symmetric variable equivalent sample rate coefficient converter having as inputs the variable resampling parameter and a decay component of the initial coefficient, and providing as an output the decay component of the variable coefficient.

6. (Currently Amended) A filter having a variable passband comprising:

a filter circuit having as inputs a signal to be filtered (a forward signal) and a reverse version of the signal to be filtered (a reverse signal), and having as an output a filtered signal as a function of a variable coefficient; and

a variable equivalent sample rate coefficient converter having an initial coefficient as an input together with a variable resampling rate parameter that determines the variable passband, and providing as an output the variable coefficient as a function of the variable resampling rate parameter;

wherein the filter circuit comprises:

a first IIR filter having the forward signal and the variable coefficient as inputs, and providing as an output a first filtered signal;

a second IIR filter having the reverse signal and the variable coefficient as inputs, and providing as an output a second filtered signal; and

means for combining the first and second filtered signals with the forward signal to provide the filtered signal; ~~The filter as recited in claim 2~~

wherein the combining means comprises:

an input multiplier having as inputs the forward signal and an all pass gain coefficient derived from the variable coefficient and the variable resampling rate parameter, and providing an output;

a summing circuit having as inputs the first and second filtered signals and the output from the input multiplier, and providing as an output a preliminary filtered signal; and

an output multiplier having as inputs the preliminary filtered signal and a gain correction coefficient to provide overall gain for the filter, and providing as an output the filtered signal.

7. (Currently Amended) The filter as recited in claims ~~2-6~~ 6 wherein the variable coefficient input to the first and second IIR filters is a decay component of the variable coefficient.

8. (New) A filter having a variable passband comprising:

a filter circuit having as inputs a signal to be filtered (a forward signal) and a reverse version of the signal to be filtered (a reverse signal), and having as an output a filtered signal as a function of a variable coefficient; and

a variable equivalent sample rate coefficient converter having an initial coefficient as an input together with a variable resampling rate parameter that determines the variable passband, and providing as an output the variable coefficient as a function of the variable resampling rate parameter;

wherein the filter circuit comprises:

a first IIR filter having the forward signal and the variable coefficient as inputs, and providing as an output a first filtered signal;

a second IIR filter having the reverse signal and the variable coefficient as inputs, and providing as an output a second filtered signal; and

means for combining the first and second filtered signals with the forward signal to provide the filtered signal; and

wherein the variable coefficient input to the first and second IIR filters is a decay component of the variable coefficient.